CERTIFICATE OF CORRECTION

PATENT NO.   : 6,766,230 B1
DATED   : July 20, 2004
INVENTOR(S) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 3,
Line 53, please delete "testing" and insert -- testing, --.

Column 4,
Lines 14-18, please delete "u_{0i}, i = 1..m   are the input vectors   and insert
Δu_i, i = 1..m are the input fault vectors
θ_{0i}, i = 1..m are the nominal parameter vectors
$\Delta\theta_i$, i = 1..m are the parameter fault vectors
x_i, i = 1..m are the state vectors"

-- u_{0i}, i = 1..m are the input vectors
Δu_i, i = 1..m are the input fault vectors
θ_{0i}, i = 1..m are the nominal parameter vectors
$\Delta\theta_i$, i = 1..m are the parameter fault vectors
x_i, i = 1..m are the state vectors --.

Lines 24-29, please delete

"

$$\begin{cases} \dot{x}_1 = f_1(x_1, u_1, \theta_1) \\ y = h_1(x_1, u_1, \theta_1) + \Delta y \end{cases}, x_1 \in \Gamma_1 \qquad (1)$$

$$\vdots \qquad\qquad \vdots$$

$$\begin{cases} \dot{x}_m = f_m(x_m, u_m, \theta_m) \\ y = h_m(x_m, u_m, \theta_m) + \Delta y \end{cases}, x_m \in \Gamma_m$$

"

and insert

--

$$\begin{cases} \dot{x}_1 = f_1(x_1, u_1, \theta_1) \\ y = h_1(x_1, u_1, \theta_1) + \Delta y \end{cases}, \quad x_1 \in \Gamma_1$$

$$\vdots \qquad\qquad \vdots \qquad\qquad (1)$$

$$\begin{cases} \dot{x}_m = f_m(x_m, u_m, \theta_m) \\ y = h_m(x_m, u_m, \theta_m) + \Delta y \end{cases}, x_m \in \Gamma_m$$

--.

Line 31, please delete "$u_{0i} = u_{0i} + \Delta u_i$, $\theta_i = \theta_{0i} + \Delta\theta_i$, i = 1..m" and insert -- $u_{0i} = u_{0i} + \Delta u_i$, $\theta_i = \theta_{0i} + \Delta\theta_i$, $i = 1..m$ --.

UNITED STATES PATENT AND TRADEMARK OFFICE
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PATENT NO. : 6,766,230 B1   Page 2 of 4
DATED   : July 20, 2004
INVENTOR(S) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 4 (cont'd),
Lines 37-44, please delete

"
$$\begin{cases} \dot{x}_i = g_i(\hat{x}_i, u_i, \hat{\theta}_i, y) \\ \hat{y}_i = h_i(\hat{x}_i, u_i, \hat{\theta}_i) \end{cases}, \hat{x}_i \in \Gamma_i \qquad (2)$$

$$\vdots \qquad\qquad \vdots$$

$$\begin{cases} \dot{x}_m = g_m(\hat{x}_m, u_m, \hat{\theta}_m, y) \\ \hat{y}_m = h_m(\hat{x}_m, u_m, \hat{\theta}_m) \end{cases}, \hat{x}_m \in \Gamma_m$$

and insert

$$\begin{cases} \dot{\hat{x}}_1 = g_1(\hat{x}_1, u_1, \hat{\theta}_1, y) \\ \hat{y}_1 = h_1(\hat{x}_1, u_1, \hat{\theta}_1) \end{cases}, \quad \hat{x}_1 \in \Gamma_1$$

$$\vdots \qquad\qquad \vdots \qquad\qquad (2)$$

$$\begin{cases} \dot{\hat{x}}_m = g_m(x_m, u_m, \hat{\theta}_m, y) \\ \hat{y}_m = h_m(\hat{x}_m, u_m, \hat{\theta}_m) \end{cases}, \hat{x}_m \in \Gamma_m$$

--.

Line 48, please delete " $\hat{x}_i \to x_i$ for $i \to \infty$, $i = 1 \dots n$ (3)$^{"}$

and insert $\hat{x}_i \to x_i$ for $t \to \infty$, $i = 1..n$ (3) --.

Column 5,
Line 41, please delete "$a_{lat} \leq 0.2g$" and insert -- $a_{lat} \leq 0.2g$ --.
Lines 45-50, please delete

"
$$\begin{cases} \dot{v}_x = \frac{F_x}{M} + v_y \dot{\psi} \\ \dot{v}_y = -\frac{2}{M}(C_f + C_r)\frac{v_y}{v_x} - \frac{2}{M}(aC_f - bC_r)\frac{\dot{\psi}}{v_x} - v_x\dot{\psi} + \frac{2C_f}{MG}\delta \\ \ddot{\psi} = -\frac{2}{J}(aC_f - bC_r)\frac{v_y}{v_x} - \frac{2}{J}(a^2C_f + b^2C_r)\frac{\dot{\psi}}{v_x} + \frac{2aC_f}{JG}\delta \end{cases} \qquad (4)$$
"

UNITED STATES PATENT AND TRADEMARK OFFICE
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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

<u>Column 5 (cont'd)</u>,
and insert

$$\begin{cases} \dot{v}_x = \frac{F_x}{M} + v_y \dot{\psi} \\ \dot{v}_y = -\frac{2}{M}(C_f + C_r)\frac{v_y}{v_x} - \frac{2}{M}(aC_f - bC_r)\frac{\dot{\psi}}{v_x} - v_x \dot{\psi} + \frac{2C_f}{MG}\delta \\ \ddot{\psi} = -\frac{2}{I}(aC_f - bC_r)\frac{v_y}{v_x} - \frac{2}{I}(a^2 C_f + b^2 C_r)\frac{\dot{\psi}}{v_x} + \frac{2aC_f}{IG}\delta \end{cases} \tag{4}$$

--.

<u>Column 6</u>,
Lines 2-16, please delete

"   (5) "

$$\dot{x} = \left(\frac{\partial H(\hat{x})}{\partial \hat{x}}\right)^{-1} M(\hat{x})\,sign(V(t) - H(\hat{x})) + B\delta$$

where
$$H(x) = [h_1(x)\ h_2(x)\ h_3(x)]$$
$$h_1(x) = \dot{\psi} = r$$
$$h_2(x) = \dot{r}$$
$$h_3(x) = \ddot{r}$$
$$V(t) = [v_1(t)\ v_2(t)\ v_3(t)]$$
$$v_1(t) = r(t)$$
$$v_{i+1} = (m_i((x))\,sign\,(x(v_i(t) - h_i(\hat{x}(t))))_{eq},\ i=1,2$$
$$M(\hat{x}) = diag\,(m_1(\hat{x})\ m_2(\hat{x})\ m_3(\hat{x}))$$

and insert

$$\dot{x} = \left(\frac{\partial H(\hat{x})}{\partial \hat{x}}\right)^{-1} M(\hat{x})\,sign(V(t) - H(\hat{x})) + B\delta \qquad (5)$$

where
$$H(x) = [h_1(x)\ h_2(x)\ h_3(x)]$$
$$h_1(x) = \dot{\psi} = r$$
$$h_2(x) = \dot{r}$$
$$h_3(x) = \ddot{r}$$
$$V(t) = [v_1(t)\ v_2(t)\ v_3(t)]$$
$$v_1(t) = r(t)$$
$$v_{i+1} = \left(m_i((x))\,sign\,(x(v_i(t) - h_i(\hat{x}(t))))\right)_{eq},\ i=1,2$$
$$M(\hat{x}) = diag\,(m_1(\hat{x})\ m_2(\hat{x})\ m_3(\hat{x}))$$

--.

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DATED : July 20, 2004
INVENTOR(S) : Rizzoni et al.

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Column 6 (cont'd),
Line 33, please delete " $R=[a_{lat}-\hat{a}_{y1}\delta-\hat{\delta}a_{lat}-\hat{a}_{y2}C_f-\hat{C}_f a_{lat}-\hat{a}_{y3}C_r-\hat{C}_r]$ (6) "

and insert -- $R = [a_{lat} - \hat{a}_{y1}\ \delta - \hat{\delta}\ a_{lat} - \hat{a}_{y2}\ C_f - \hat{C}_f\ a_{lat} - \hat{a}_{y3}\ C_r - \hat{C}_r]\ (6)$ --.
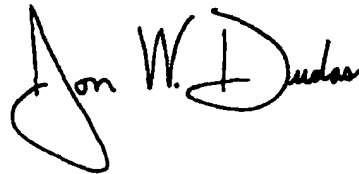
Column 8,
Line 42, please delete "said-residual," and insert -- said residual --.

Column 10,
Line 20, please delete "generator a" and insert -- generator, a --.

Signed and Sealed this

Thirtieth Day of August, 2005

JON W. DUDAS
Director of the United States Patent and Trademark Office